ABSTRACT

The present invention provides a system and method for allocating the supply of critical material components and manufacturing capacity by optimizing critical material planning decisions and dynamically allocating constrained materials. The supply allocation system and method support detailed bills-of-material (BOMs) and optimize the use of constrained materials through advanced substitution logic that even considers alternate suppliers and supports the complete product life cycle from design through end-of-life. The supply allocation system and method of the present invention utilize unique synchronized allocations and matched sets logic. The synchronized allocations ensure that all necessary materials for production of a product are available in the appropriate time-phased allocation before beginning production to help ensure that production and materials are not wasted on products that cannot be completed. The supply system may include various combination of components including, a Supply Planner, a Resource Optimizer, a Constraint Based Master Planner, a Product Change Analyzer, a Comparer, a Resource Requirements Planner, a Finite Resource Planner, a Customer Promiser, and an Interactive Master Scheduler. The core of the simulation process is the Supply Planner. Other components, such as the Resource Optimizer and the Comparer, then perform their analyses on the output of the Supply Planner. Another embodiment of the supply system include "SmartBILL" substitution to increase responsiveness.